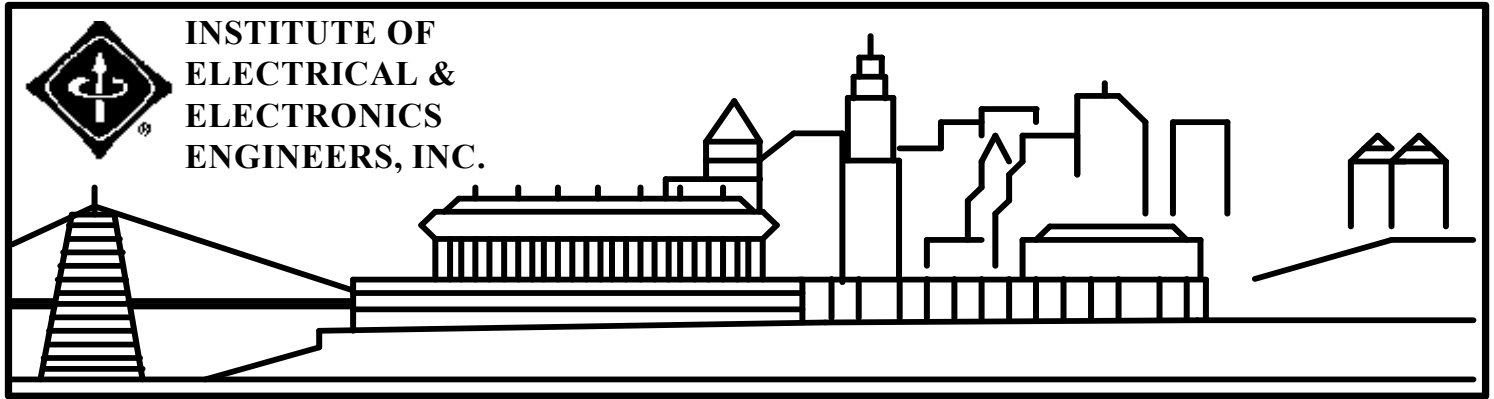




FEBRUARY 1994

IEEE CINCINNATI SECTION NEWSLETTER

ENGINEERS and SCIENTISTS of CINCINNATI (ESC)

invites you to attend the

59th ANNUAL MEETING the highlight of ENGINEERS WEEK

*to be held on Thursday, February 17, 1994
at the HARLEY HOTEL, Kenwood (I-71 & Montgomery Rd.)*

6:00 P.M. Social Hour

7:00 P.M. Dinner-Choice of London Broil or Chicken New Orleans (COST - \$25 PER PERSON)

8:00 P.M. Presentation of Awards

DISTINGUISHED ENGINEER
DISTINGUISHED SCIENTIST
YOUNG ENGINEER
YOUNG SCIENTIST
PROFESSIONAL ACCOMPLISHMENT
COMMUNITY SERVICE

8:30 P.M. Speaker - James A. Wuenker

Topic: "Economic Outlook for Greater Cincinnati in the Coming Year"

Contact Dee Scott at (513) 459-8038 for more details. Please phone RESERVATIONS in by **February 14, 1994**

Tickets will be held at the ESC reservations table at the Harley Hotel. After calling Dee, please make reservation checks payable to ESC and mail to:

ESC
c/o Dee Scott
7780 Hackney Circle
Maineville, Ohio 45039

Spouses are encouraged to attend.

CHAIRMAN'S MESSAGE

by Jim Everly

The Winter Quarter meeting of the Cincinnati Section Executive Committee was held on January 13, 1994. The new Section Officers were installed and the old section officers are busy preparing annual reports for the IEEE Headquarters. Committee reports were given and the following topics were discussed:

OLD BUSINESS

- Results of Election of Section Officers for 1994.
- Results of Freshman Membership Drive.
- Section Meetings for 1994 (Topics/Chairs).
- Establishment of Rates for Newsletter Advertising.
- Additional Old Business?

NEW BUSINESS

- ESC Awards Banquet (Advertising & Attendance).
- 1993 Reports to IEEE (Secretary & Treasurer).
- Engineering Week Activities (February 20 - 26).
- Section Newsletter: Job-Wanted Advertisements for members?
- Additional New Business?

The next IEEE Executive Committee Meeting is on Apr. 28, 1994. Don't forget the 59th Annual ESC Banquet on Thursday, Feb. 17, 1994, at the Harley Hotel in Kenwood. The Banquet takes the place of our February Section Meeting. The committee is still busy planning meeting topics for the remainder of the year. If you have any suggestions, give us a call. Our telephone numbers are listed on the back cover of the Newsletter.

1994

IEEE CINCINNATI SECTION MEETINGS

MONTH	SECTION MEETING	EXECUTIVE COMM. MEETING
February	17	X
March	24	X
April	21	28
May	19	X
June	3	X

AM RADIO COMES OF AGE

By Dick Reiman, Historian

Following the success of the KDKA and RCA early broadcasts, there was a rash of requests for station licenses. The Department of Commerce recognized broadcasting stations as a distinct class and began to license them on a single frequency, 833 kHz. By 1921, twenty-eight stations had been granted licenses. Stations were started in New York, Chicago, Boston, Pittsburgh, Detroit, Los Angeles and San Francisco. Interference was so severe that a new approach utilizing more frequencies and regulating power levels was begun. In 1922, an additional channel, 750kHz, was added and 1000 watts was the maximum power level. By 1924, the entire band from 550kHz to 1500 kHz was allocated and three levels of power, 5000, 500 and 100 watts were established. These became the designations of "clear", "regional" and "local". Finally, the Radio Act of 1927 gave the FRC necessary power to regulate the technical operations of stations.

How was the broadcasting business to be financed? Was the government to own and operate the stations with tax money, would advertising pay for the private ownership, would universities operate the stations as part of the education budget, or would the radio receiver manufacturers operate them as an incentive to sell the sets? In Europe, public ownership won out with such government organizations as the BBC. Broadcasts using advertisement was first thought to be "unseemly" by Commerce Secretary Herbert Hoover, and "unthinkable" by David Sarnoff. But advertising became the principle economic basis of radio broadcasting, with some additional regulation compared to other media such as newspapers and magazines.

Early radio broadcasting technology was primitive but gradually improved with radio's commercial success. The power transmitters used the low-level grid modulation method developed by AT&T for radiotelephony. Most of the power appeared as heat on the anode of the final amplifier tube, and had to be dissipated by a water-cooled jacket, with the water being distilled so as to be nonconducting with meticulously cleaned ceramic plumbing also necessary. Transmitting antennas were first just simple tower structures with long wires strung on poles. Later, importance of good grounding was employed to improve transmission efficiency. Multitower directional antennas also came later.

Radio receiver design started with the "Cat's Whisker" crystal detector with no electron tube amplification. Earphones were used in place of loudspeakers and the energy to operate them came from the audio wave. A strong signal was required and only nearby stations could be received. A cylindrical oatmeal box became the form for the tuning coil. Armstrong's regenerative detector was used by some but was limited due to its tendency to "howl" when improperly adjusted. With a tuned radio frequency receiver, each stage of amplification had to be tuned, then retuned to the desired station. Telephone earpieces mounted on the throat of a horn were replaced by moving coil speakers. Finally, Armstrong's superhetrodyne circuit and 120 Volt AC Power Supplies revolutionized receiver radio design.

Dee Scott (call for meeting reservations)	459-8038
Jim Everly - Chairman	777-7129 (Home)
	556-4224 (Fax)
	556-4241 (Office)
Steve Olenick - Vice Chairman	573-6555
Orest Melnyk - Treasurer	397-9212
Mark Reineck - Secretary	753-6290
Bob Morrison - Editor	287-3697 (Office); 287-3698 (Fax)

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**The Institute of Electrical and
Electronics Engineers, Inc.
C/O Dee Scott
7780 Hackney Circle
Maineville, Ohio 45039**

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Please deliver promptly